REMARKS

Abstract

The Examiner has objected to the Abstract as including a formula and multiple sections. Applicants have submitted an amended Abstract and respectfully request that the Examiner review this objection in light of the amendment.

Drawings

The Examiner has objected to the drawings as including elements "10, 14 as part of the rim while the wheel assembly do not includes the components on the rim." However, elements 10 and 14 are not shown as part of the rim. Instead, elements 10 and 14 represent the bead ring of the tire in the positions Applicants used to model the movement of the bead seat onto the rim. See page 4 of the present application. Elements 10 and 14 are not tools as indicated by the Examiner on page 4 of the Office Action. For additional clarity in helping the Examiner understand the drawings, Applicants has included a replacement drawing for Fig. 3 that shows where element 10 is located within the tire after the tire is mounted. The tire is not shown in Figs. 1 and 2 so that Applicants make clearly show the positions of elements 10 and 14 as modeled by Applicants. These elements would be obscured if the tire were also shown. If Applicants have misunderstood the objection presented by the Examiner, Applicants respectfully request additional clarification of the Examiner's objection.

Rejections under 35 U.S.C. § 112

Claims 1 through 4 were rejected "under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention." While the Examiner indicated all claims were so rejected, the Examiner's remarks were limited to Claim 1 and Applicants have focused accordingly.

Claim 1 of the present application has been amended to more particularly point out and distinctly claim the subject matter Applicants regard as the invention. The Examiner has indicated that it is unclear why items 10 and 14 appear in the drawings while the claim 1 indicates mounting without tools. However, items 10 and 14 are not tools. Instead, item 10 illustrates a bead ring of the tire being mounted while item 14 represents the triangular portion of the bead 10 created in Applicants' modeling of the mounting process. See Application at Page 4, Paragraph 20. More specifically, items 10 and 14 are part of the tire bring mounted; for the sake of clarity and showing the model being used, the rubber composite portion of the tire that encloses items 10 and 14 is not shown in the figures.

Rejections under 35 U.S.C. § 103(a)

Claims 1-4 were rejected under 35 U.S.C. 103(a) as being unpatentable over Ball. The Examiner states that the general concept of using design parameters to achieve a bead seat circumference which satisfies the equation recited in the claims and which is mountable by hand "falls within the range of common knowledge as obvious mechanical expediency and part of common routing design optimization." The Examiner also states that it would have been obvious to use the design parameters to achieve a bead seat circumference satisfying the equations recited in the claims and which is mountable by hand in order to reduce stress. Applicants respectfully traverse the Examiner's rejection.

Applicant respectfully submits that Ball does not disclose parameter M as required by the claims of the present application. In addition, as acknowledged by the Examiner, Ball does not teach that a rim meeting the relationship between the parameters (including parameter M) defined by the equations recited in the claims will provide a wheel rim that allows for mounting a tire by hand. In fact, Ball cannot teach the equation recited in the claims because Ball does not teach parameter M or Applicants' discovery, discussed on page 4, that the movement of a rim over a tire can be modeled using parameter M and the equation recited in the claims so as to provide a tire that can be mounted by hand.

Applicant also respectfully submits that the Examiner's assertion that it would be a matter of common knowledge/common routing design optimization for one of ordinary skill in the art to use the parameters of Applicant's equation, including parameter M, to create a rim meeting Applicants' is also misplaced: One of ordinary skill in the art has no knowledge of parameter M and its relationship to the other parameters of Applicant's equation because the present application is believed to be the first to disclose it. Thus, such could not be within the common knowledge of one or ordinary skill in the art, and Applicants respectfully submit that it is improper for the Examiner to attribute that knowledge using the teachings of the present application. Even assuming that one of ordinary skill in the art was aware of all of the parameters of the equations set forth in the equations in Applicants' claims, it does not follow that modifying the relationship of those parameters to meet the equations and provide a rim as set forth in the claims is obvious. A particular parameter must be recognized as a result-effective variable, i.e. a variable which achieves a recognized result, before the determination of the desired workable ranges of such variable can be said to be routine experimentation/optimization. See In re Antonie, 559 F.2d 618, 195 U.S.P.Q. 6 (CCPA 1977), see also MPEP § 2144.05. Applicants respectfully submit that the Examiner has not cited a reference

disclosing that parameter M, any of the other parameters, or the relationship between them, are result effective parameters for achieving a tire that can be mounted by hand. Such teaching comes only from the present application. Applicants respectfully request that the Examiner remove this rejection of claims 1-4 and allow the claims, as amended above, to issue.

In conclusion, Applicants respectfully submit that all claims are allowable and that the application is in condition for allowance. Favorable reconsideration and action thereon is respectfully requested. The Examiner is encouraged to contact the undersigned at a time convenient to the Examiner to resolve any remaining issues.

Respectfully submitted,

DORITY & MANNING, P.A.

NOVEMBER 4, 2004
Date

Tim F. Williams, Esq.
DORITY & MANNING, P.A.
Post Office Box 1449
Greenville, SC 29602-1449
Telephone: (864) 271-1592
Facsimile: (864) 233-7342

IN THE DRAWINGS

A replacement drawing for Fig. 3 is submitted herewith in which a reference numeral 10 and appropriate lead line have been added as explained in the Remarks section below.